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**Thin films thick with promise**

Organic materials are touted with the potential to revolutionize the manufacture of low-cost electronic devices. Organic materials are usually associated with the packaging used to contain silicon electronics, but certain classes of organic materials can serve as conductors or semiconductors. Fabricating organic devices by the kilometer on a roll-to-roll basis is a dream of many, and substantial progress has been made in developing cost-effective organic-based electronic devices.

This issue of *MRS Bulletin*'s ENERGY QUARTERLY includes an interview with Ching W. Tang of the University of Rochester. Tang as much as anyone deserves substantial credit for early breakthroughs that showed the world that efficient organic electronic devices are possible. The key finding was that the use of an organic heterojunction enabled the engineering of thin-film devices that would function at voltage and current levels reasonably compatible with application needs. In the early 1980s, Tang, then at Eastman Kodak, showed for the first time that an organic heterojunction could produce a photovoltaic (PV) cell with good I–V characteristics. Shortly thereafter, he and Steven Van Slyke introduced the organic light-emitting diode (OLED). His first OLED paper holds the record for the most highly cited article in the history of *Applied Physics Letters* [48 (1986) p. 183]. These and subsequent papers taught that the layers in organic thin-film devices could be rationally engineered to promote the interconversion of excitons and charge pairs, and spawned an entirely new approach that was adopted widely by researchers in industry and in academia.

Many expect that OLED lighting will transform the way that buildings are lit, providing substantial power savings and enabling unique new designs in a cost-effective manner. OLED displays are on a path to reduce the power consumed by television usage, while organic PV offers the potential for low-cost flexible electricity generation. This interview provides a fascinating glimpse into the history of these materials and devices, with an impact on multiple major industries.

Paul Drzaic
Chair, *MRS Bulletin* Editorial Board

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